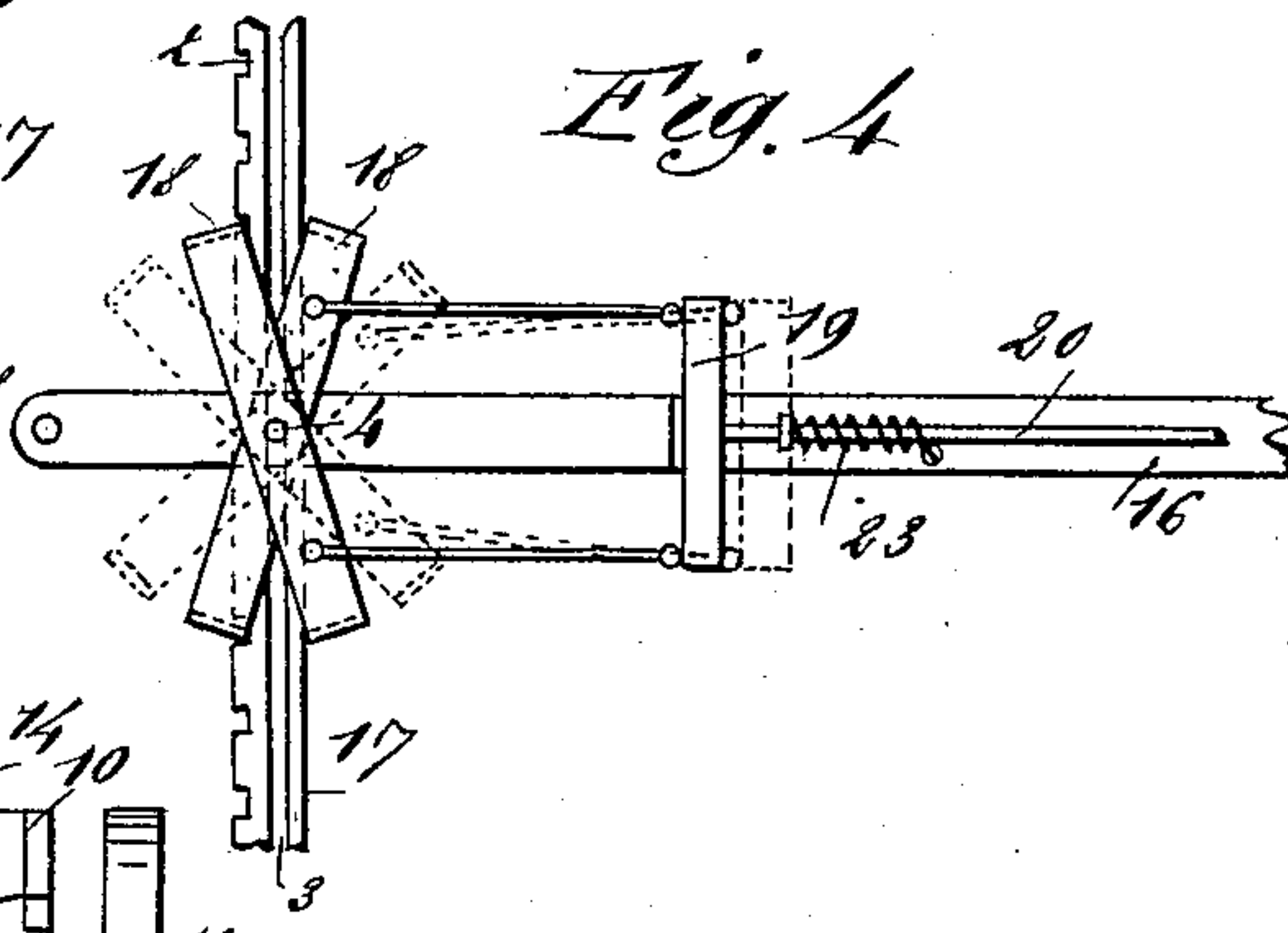
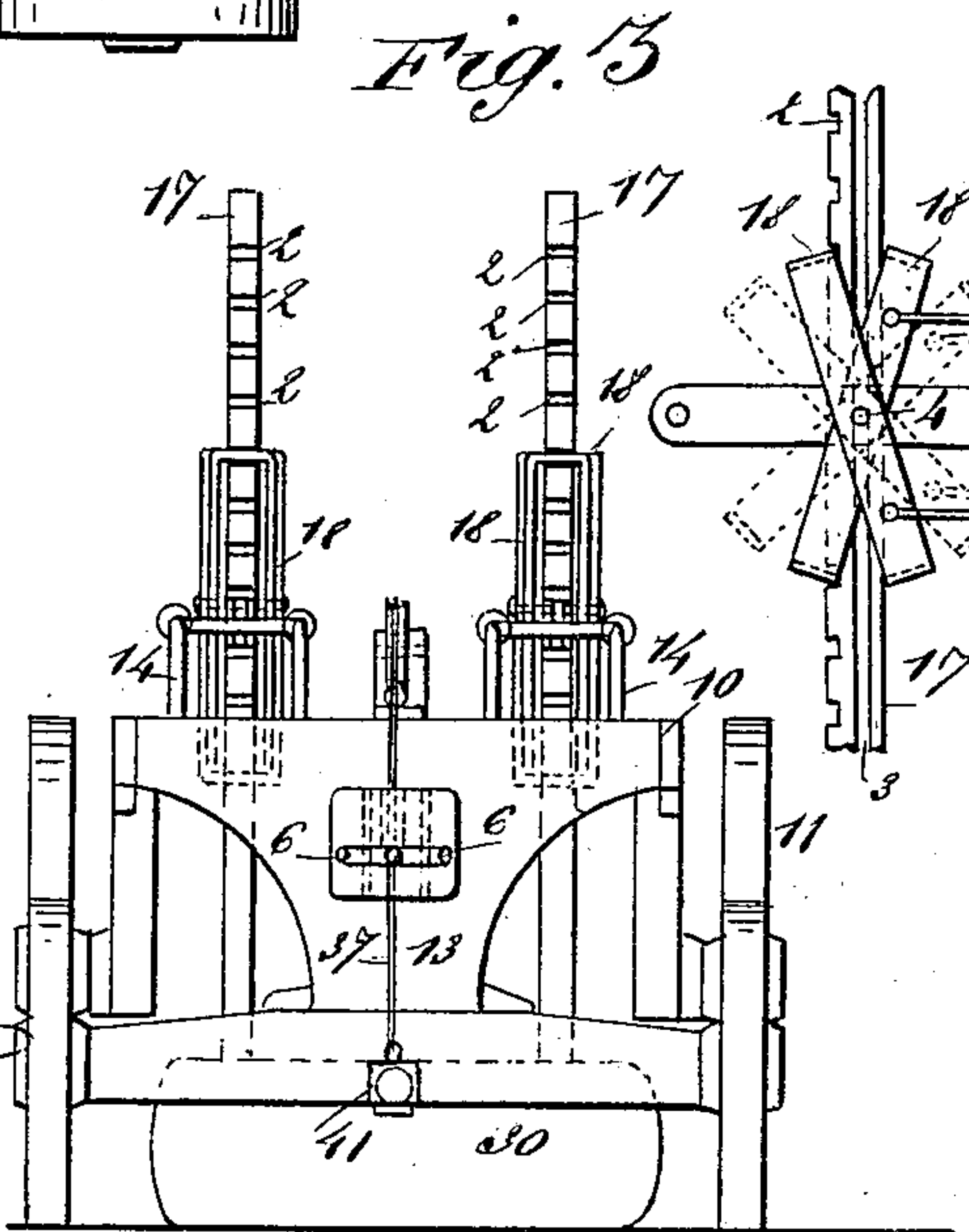
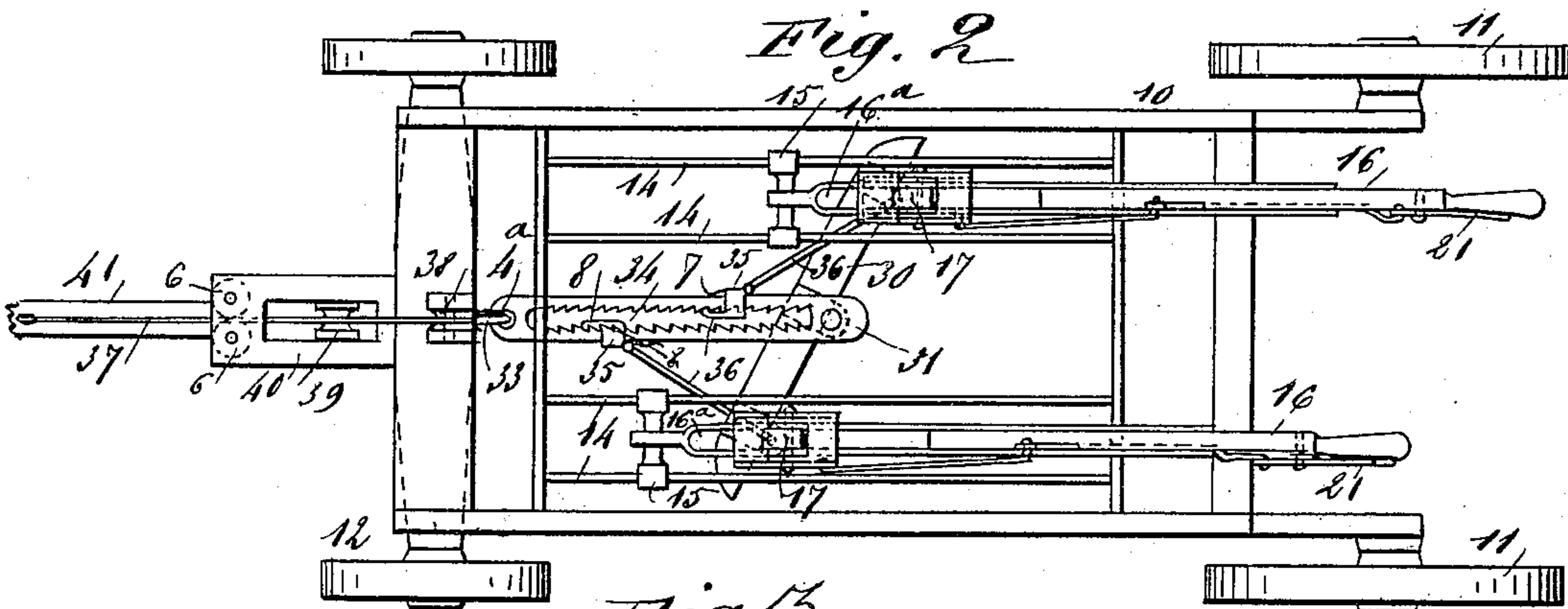
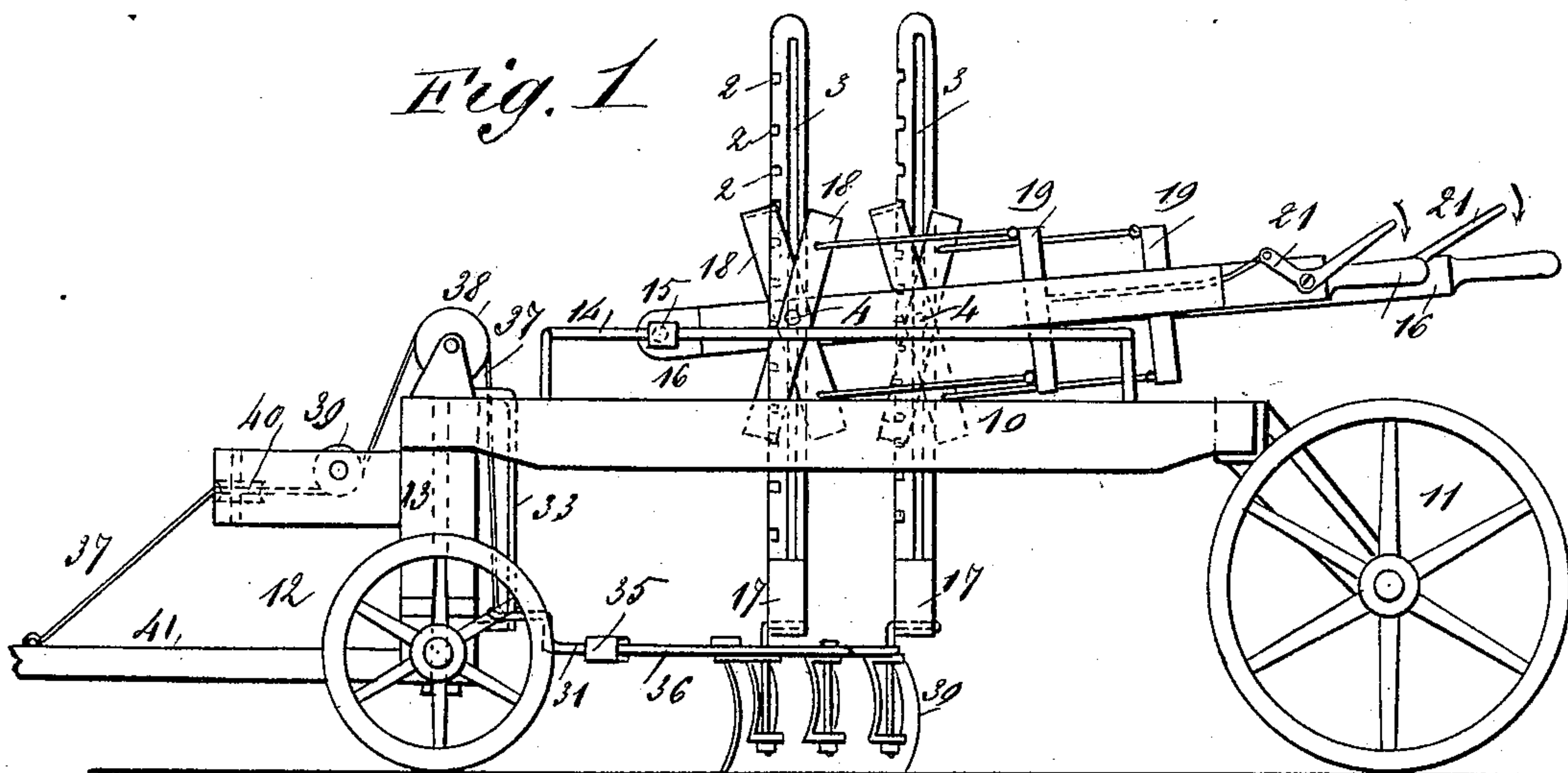


(No Model.)

J. M. HOLLAND.  
ROAD GRADING MACHINE.

No. 397,291.

Patented Feb. 5, 1889.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES M. HOLLAND, OF MOUNT PLEASANT, IOWA.

## ROAD-GRADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 397,291, dated February 5, 1889.

Application filed February 3, 1888. Serial No. 262,833. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES M. HOLLAND, of Mount Pleasant, in the county of Henry and State of Iowa, have invented a new and Improved Road-Grading Machine, of which the following is a full, clear, and exact description.

The object of this invention is to provide a simple, cheap, and durable road-grading machine, and one wherein the scraping blade or shovel may be adjusted to any desired angle, said blade being so mounted that it will be automatically raised from the ground to a position to allow the front wheels to pass beneath the supporting-frame at times when the vehicle is turned sharply around.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side view of my improved road-grading machine. Fig. 2 is a plan view of the same. Fig. 3 is a front view thereof, and Fig. 4 is an enlarged detail view of a portion of one of the standards and the lever and locking devices arranged in connection therewith.

In the drawings, 10 represents the main frame of the machine, which is mounted upon wheels 11 and 12. The axle of the forward wheels, 12, supports a heavy bolster, 13, upon which the forward end of the frame 10 rests. At each side of the frame 10 there are arranged parallel rods or bars 14, and upon each pair of bars there is adjustably mounted a fulcrum-block, 15, levers 16 being mounted to turn upon the fulcrum.

The levers 16 are formed with longitudinal slots 16<sup>a</sup>, through which pass vertical standards 17, the forward edges of the standards being formed with notches or recesses 2, while through the bodies of the standards there are formed vertical slots 3, which provide for the passage of the pintles or bolts 4, by which the catches 18 are connected. These catches 18 consist of flat strips of iron, the ends of which are riveted or secured together to form rectangular loops, the width of one being slightly in excess of that of the other, so that the narrower loop will fit within the wider one. The upper end of one of the loops and the lower

end of the other loop engage the notches 2 of the standard in connection with which they are arranged; and in order that the catches may be thrown into and out of engagement with the standard-notches I connect the rearwardly-extending end of each loop with an equalizer, 19, which said equalizer is in turn connected to a rod, 20, said rods being held to the levers 16 and provided with operating-levers 21, the equalizer, however, being normally held in the position in which it is shown in Fig. 4 by a spiral spring, 23.

The scraping blade or shovel 30 is pivotally connected to the rear end of a centrally-slotted bar, 31, the forward end of said bar being formed with an eye, 4<sup>a</sup>, through which there is passed a vertical clevis, 33, which clevis is in the form of an expanded U, the U-legs extending forward and being formed with eyes through which the king-bolt of the implement passes.

The central slot, 34, of the bar 31 is formed with a double rack, which rack is engaged by blocks 35, to which blocks diagonal braces 36 are in turn connected, said braces extending to the outer ends of the scraping blade or shovel. To the forward end of the slotted bar 31 there is connected a chain or rope, 37, which extends upward over a sheave, 38, downward and about a sheave, 39, that is carried by a bracket, 40, which extends forward from the bolster 13, this bracket also carrying two horizontal sheaves, 6, between which the cord or chain 37 passes, the end of the cord or chain being connected to the pole or tongue 41. The ends of the blade or shovel 30 are pivotally connected to the lower ends of the standards 17.

Such being the general construction of my improved road-grading machine, the operation is as follows: By throwing the levers 21 in the direction of the arrows shown in connection therewith in Fig. 1, the equalizers 19 will be drawn backward and the catches 18 will be moved to the position shown in dotted lines in Fig. 4, after which the standards at either side may be raised or lowered to impart a proper angle to the blade or shovel, in which position the blade may be maintained if the levers 21 are released and the catches



allowed to return to the position shown in full lines in the drawings. Then as the machine is drawn forward, if it is desired to raise or lower either side, all that is necessary is to impart a corresponding motion to the lever 16 upon that side.

The adjustment heretofore described is that for obtaining the desired angle from a horizontal plane, and to obtain the required angle from a vertical plane the blocks 35 are moved toward or from the forward axle of the machine, these blocks being held in engagement with the rack-teeth of the bar by springs 7, which bear against the outer edges of the bar and hold the catch-teeth 8 formed upon the blocks in engagement with the rack-teeth.

If when the machine is in use it is desired to turn a sharp corner, it will be seen that as the tongue or pole is turned in either direction it will draw upon the chain or cord 37, and said chain or cord will act to raise the forward end of the bar 31, and consequently will permit the forward wheels to pass beneath the frame of the vehicle, so that this raising of the bar is automatic.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a road-grading machine, the combination, with the main frame, of a double-toothed rack connected thereto, a blade adjustably connected to the double-toothed rack, and braces extending forward from the blade to blocks which engage the rack-teeth, substantially as described.

2. In a road-scraper, the combination, with the main frame, of a bar having its forward end loosely connected to the main frame, a blade pivoted at about its center to the said

bar, braces having one end connected to the blade and the other ends adjustably connected to the said bar, independent standards adjustably secured in the frame and having their lower ends pivotally connected to the blade, and catches for locking the standards in the position to which they have been adjusted, substantially as described.

3. In a road-grading machine, the combination, with the main frame, of levers adjustably mounted thereon, catches carried by the levers, standards formed with notches that are engaged by the catches, a blade or shovel connected to the lower ends of the standards, a double-toothed rack connected to the frame of the machine and centrally-connected to the blade or shovel, blocks engaging the rack-teeth, and diagonal braces extending from the blocks to the ends of the blade or shovel, substantially as described.

4. In a road-scraper, the combination, with the frame 10, of levers adjustably mounted thereon, catches 18, carried by the levers, equalizers to which the catches are connected, rods connected to the equalizers, handle-levers connected to the rods, and spiral springs arranged in connection with the rods, slotted standards formed with recesses 2, the pintles or pins of the catches passing through the standard slots, a double-toothed bar connected to the main frame of the machine and to the shovel, blocks carried by said bar, and diagonal braces connected to the blocks and to the ends of the shovel, all substantially as described.

JAMES M. HOLLAND.

Witnesses:

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